72 Leroy Street, Potsdam, New York 13676 USA

Professor of Music, Crane School of Music, State University College, Potsdam, New York 13676 USA

programmes/programs/programmi \_\_

Tablature to Standard Notation (see below)

GMT CAMA

Thematic Indices of the works of several 16th Century Spanish composers (see below)

MEV MEK CAMD

CHORDAL (in collaboration with M.L.Hultberg) (refer to her listing)

CAME

textes/writings/testi\_

HULTBERG, Warren E.
"TRANSCRIPTION OF TABLATURE TO STANDARD NOTATION."
in THE COMPUTER AND MUSIC, Harry B. Lincoln, ed.,
Cornell University Press, Ithaca, 1970. 288-292.

GMT CAMA

HULTBERG, Warren E. & HULTBERG, Mary Lou "PROJECT CLEF: CAI IN MUSIC THEORY." in Proceedings of the Fourth Conference on Computers in Undergraduate Instruction (CCUC/4). The Institute for Educational Computing, Claremont, California, 1973. 222-225

CAME

COMPUTER-ASSISTED INSTRUCTIONAL PROGRAMS IN MUSIC THEORY. PARTS I AND II.

A report submitted to the Rand Corporation, Santa Monica, California, as part of the study on the uses of computers in higher education commissioned by the Carnegie Commission on Higher Education. 1969-70.

CAME

activité/activity/attività-

1. Project CLEF: CAI in Music Theory. In collaboration with M.L.Hultberg (refer to her listing).

CAME

7/75

cont.

2. Development of thematic indices (in DARMS/Ford Columbia Music Representation) of the complete works of 16th century Spanish composers: Antonio de Cabezon, Venegas de Henestrosa, Alonso Mudarra, Cristobal de Morales, Enriques de Valderrabano, Tomas Luis de Victoria.

MEV MEK CAMD

In Process: Miguel de Fuenllana; Diego Pisador.

GMT CAMA

- Tablature to Standard Notation.

  This system is designed to provide an efficient method for the production of a cerrect one-to-one translation of tablature (keyboard-e.g., Cabezon; vihuela or lute-Spanish/Italian; lute or gamba, etc.-French/English; German in process) via an intermediate code based on the tablature, to DARMS, and utilizing an additional process still under development, to standard notation. The translation program (tablature to intermediate code to DARMS) is in PL/1; the additional program (DARMS to standard notation) currently in FORTRAN IV.

  Procedures: 1) INPUT. Manual encoding of the intermediate code
  - procedures: 1) INPUT. Manual encoding of the intermediate code on 80 column keypunching forms. The encoder, making relatively musicological decisions, follows separately each voice (keyboard) or string (lute, vihuela, etc.) from the beginning to end of each piece. The format is a five character field that indicates note, values, and other information.
  - 2) OUTPUT (DARMS). The PL/1 concatenates the data, aligns vertical simultaneities, edits out extra data (e.g., measure bars used separately in each part), detects any encoding errors. In the DARMS format, the music may be analyzed using additional programs in any way desired and appropriate for computerized analysis.
  - 3) DARMS version used for score printout (under development).
- 4. In process: an edition of the <u>Libro de musica de Vihuela</u> (1552) by Diego Pisador. A unique feature of the preparation of this edition is the use of the computer as part of the transcriptional process.

CAMA CAMD

## biographie/biography/biografia -

1921	Born	at	Great	Falls.	Montana.
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<sup>1957</sup> Bachelor of Arts, University of Nevada, Reno, Nevada.

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<sup>1959</sup> Master of Arts, University of Southern California, Los Angeles

<sup>1964</sup> Doctor of Philosophy, ibid.

<sup>1948-58</sup> Professional musician. Owner-manager of music store, Reno.

<sup>1959-63</sup> Lecturer, instructor, University of Southern California.

<sup>1963-</sup> Present position. Professor of Music, Crane School of Music, State University College, Potsdam, New York.